AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions, including listings, of claims in the application.

Listing of Claims

Claim 1 (previously presented): A method for the assessment of bone fragility and fracture risk, or osteoporosis, in a person, comprising the steps of

a) measuring the concentration of gamma-carboxylated osteocalcin (COC) in the presence of EDTA by means of at least one monoclonal or polyclonal antibody or fragment thereof, said antibody or fragment

i) is specific for gamma-carboxylated osteocalcin,

ii) recognizes either an epitope occurring in the region of the amino acids 17-24 of the gamma-carboxylated osteocalcin molecule or the tertiary structure associated with the gamma-carboxylated osteocalcin, and

iii) has specificity for gamma-carboxylated osteocalcin that is dependent on the presence of bivalent metal ions, said specificity decreasing in the presence of said metal ions;

and optionally measuring the concentration of intact osteocalcin (IOC) or total osteocalcin (TOC) in a body fluid sample of said person and determining the ratio of COC to IOC (COC/IOC ratio) or the ratio of COC to TOC (COC/TOC ratio), and

b) comparing

i) the concentration of gamma-carboxylated osteocalcin (COC) for said person to the mean concentration of gamma-carboxylated osteocalcin (mean COC) in similar body fluid samples of the population of the same age and sex, or

ii) the COC/IOC ratio or COC/TOC ratio for said person to the mean COC/IOC ratio or mean COC/TOC ratio, determined from measurements in similar body fluid samples of the population of the same age and sex,

whereby

i) a COC for said person that is lower than the mean COC is an indication of osteoporosis, bone fragility or increased risk of bone fracture in said person, or

ii) a COC/IOC ratio or a COC/TOC ratio for said person that is lower than the mean COC/IOC ratio or mean COC/TOC ratio is an indication of osteoporosis, bone fragility or increased risk of bone fracture in said person.

Claim 2 (original): The method according to claim 1 wherein the body fluid sample is a serum, plasma or urine sample.

Claim 3 (canceled).

Claim 4 (previously presented): The method according to claim 1 wherein COC is measured by means of one monoclonal antibody or fragment thereof, or a mixture of several monoclonal antibodies or fragments thereof recognizing any one of the epitopes specific for gamma-carboxylated osteocalcin.

Claims 5-7 (canceled).

Claim 8 (previously presented): The method according to claim 1 wherein the antibody fragment is a recombinantly or proteolytically produced antibody fragment.

Claims 9-16 (canceled).

Claim 17 (previously presented): The method according to claim 2 wherein COC is measured by means of one monoclonal antibody or fragment thereof, or a mixture of several monoclonal antibodies or fragments thereof recognizing any one of the epitopes specific for gamma-carboxylated osteocalcin.

Claims 18-20 (canceled).

Claim 21 (previously presented): The method according to claim 2 wherein the antibody fragment is a recombinantly or proteolytically produced antibody fragment.

Claim 22 (previously presented): The method according to claim 4 wherein the antibody fragment is a recombinantly or proteolytically produced antibody fragment.

Claim 23 (previously presented): The method according to claim 17 wherein the antibody fragment is a recombinantly or proteolytically produced antibody fragment.

Claims 24-27 (canceled).